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CLAIMS

In the claims:

1. (currently amended) A heater comprising

a solid graphite body configured in a pattern for an electrical flow path defining at least one zone of an electrical heating circuit, said electrical circuit comprising terminal ends for terminals to be electrically connected to said electrical flow path, said graphite body having at least one heating surface,

a coating layer encapsulating said patterned graphite body, said coating layer comprises at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof; and

a substantially continuous surface layer disposed on said heating surface, said surface layer comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof.

2. (currently amended) A heater comprising

a graphite body configured in a pattern for an electrical flow path defining at least one zone of an electrical heating circuit, said electrical circuit comprising terminal ends for terminals to be electrically connected to said electrical flow path,

wherein a first coating layer is applied to at least one surface of said graphite body prior to being configured to form the electrical flow path pattern, said first coating layer comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof;

a second coating layer disposed on said patterned graphite body for a substantially continuous heating surface, said second coating layer comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof.

3. (original) The heater of claim 2, wherein said first coating layer encapsulates the graphite body.

4. (original) The heater of claim 2, wherein said second coating layer is applied onto the surface of the patterned graphite body that is not coated with the first coating layer, for a continuous heating surface.

5. (original) The heater of claim 2, wherein said electrical flow path has at least one of a spiral pattern, a serpentine pattern, a helical pattern, a zigzag pattern, a continuous labyrinthine pattern, a spirally coiled pattern, a swirled pattern, a randomly convoluted pattern, and combinations thereof.

6. (original) The heater of claim 2, wherein said first coating layer and said second coating layer are of the same material, selected from on of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and combinations thereof.

7. (original) The heater of claim 2, wherein said first coating layer comprises at least one of pyrolytic boron nitride, aluminum nitride, and complexes thereof.

8. (original) The heater of claim 2, wherein said second coating layer comprises at least one of pyrolytic boron nitride, aluminum nitride, and complexes thereof.

9. (original) The heater of claim 2, wherein said first coating layer and said second coating layer are formed by a technique selected from a physical vapor deposition, a chemical vapor deposition, a spraying process using an air sprayer, a painting process employing a roller, a thermal spray process, a thermal injection process, and combinations thereof.

10. (original) The heater of claim 2, wherein said first coating layer and said second coating layer are deposited using the same technique.

11. (original) The heater of claim 10, wherein said first coating layer and said second coating layer are deposited via a chemical vapor deposition process.

12. (original) The heater of claim 2, wherein the pattern in said graphite body is configured using a technique selected from one of micro machining, micro-brading, laser cutting, chemical etching, and e-beam etching.

13. (original) The heater of claim 2, wherein said graphite body is one of a disk, a platen, and a cylinder.

14. (currently amended) A method for forming a heater, said process comprising the steps of:

a) providing a solid graphite body coated on at least one surface with a first coating layer comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof;

b) configuring a pattern for an electrical flow path defining at least one zone of an electrical heating circuit in said coated graphite heater;

c) coating said patterned graphite heater with a second coating layer comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof.

15. (original) The method of claim 14, wherein said electrical circuit pattern comprises terminal ends for terminals to be electrically connected forming an electrical flow path.

16. (original) The method of claim 14, wherein said first coating layer and said second coating layer are of the same material comprising at least one of a nitride, carbide, carbonitride or oxynitride of elements selected from a group consisting of B, Al, Si, Ga, refractory hard metals, transition metals, and rare earth metals, or complexes and / or combinations thereof.

17. (original) The method of claim 14, wherein said electrical flow path has one of a spiral pattern, a serpentine pattern, a helical pattern, a zigzag pattern, a continuous labyrinthine pattern, a spirally coiled pattern, a swirled pattern, a randomly convoluted pattern, and combinations thereof.

18. (original) The method of claim 14, wherein said first coating layer and said second coating layer are formed by a technique selected from a physical vapor deposition, a chemical vapor deposition, a spraying process using an air sprayer, a painting process employing a roller, a thermal spray process, a thermal injection process, and combinations thereof.

19. (original) The method of claim 18, wherein said first coating layer and said second coating layer are formed via chemical vapor deposition.

20. (original) The method of claim 14, wherein the pattern in said graphite body is configured using a technique selected from one of micro machining, micro-brading, laser cutting, chemical etching, and e-beam etching.

21. (original) The method of claim 14, wherein said graphite body is one of a disk, a platen, and a cylinder.

22. (original) The method of claim 14, further comprising the step of providing terminal ends for terminals to be electrically connected to said electrical flow path

23. (original) Silicon wafers processed using the heater of claim 1.

24. (original) Silicon wafers processed using the heater of claim 2.